



# Northern Great Plains Network

## Inventory and Monitoring Monthly Report

December 2002



**Northern Great Plains Network Annual Meeting:** The annual I&M meeting will take place February 12<sup>th</sup> at the Ramkota Best Western in Rapid City (near the Mall). (A reminder that Fire meets on the 11<sup>th</sup> and NEKOTA on the 13<sup>th</sup>). Phil Heckman of Mt. Rushmore has set aside a block of rooms for those staying overnight. Reservations can be made by calling the Ramkota Best Western at 605-343-8550. Please have your rooms booked by January 20<sup>th</sup>; when booking identify yourself as a participant in the National Park Service gathering. (I realize that these meetings are just a couple days before the deadline for regional submission of projects for the Servicewide Comprehensive Call. I apologize for that and urge everyone to submit proposals early.)

**Data Technician Position:** I've received a certificate for the data technician position. I hope to make a decision soon.

**New/Amended Projects in FY03:** Due to our going without a data technician for most of 2002 we have about \$25k of additional funds available for FY03. I recently solicited feedback from the Network Steering Committee on how best to spend these dollars. Based on that feedback I am recommending that we add \$1.5k to our herp project, \$4.6k to our mammal project, and \$8.125k to our bird project so that the Principle Investigators can complete the "Species Information" fields in NPSpecies. As you all know from the recent RMAP request from WASO this information has not been filled in yet (I had originally planned to do this inhouse at the conclusion of the field inventories, but the PIs are in a better position to fill in the data fields and can probably do so this fall). Another \$10k could go to inventories at a park that is not scheduled for any field inventories (i.e., Badlands NP, Niobrara NSR, Theodore Roosevelt NP). Badlands NP is in a good position to use such money for a rare plant study being planned for this summer (our FY04 budget has discretionary funds included so the other two parks could receive similar funding then). We can discuss this further at the annual meeting and make a final decision then.

**Amy Symstad – BRD Plant Ecologist:** Dr. Symstad is now here at Mt. Rushmore NMEM. Her phone number is 605 574-3178. Her email is [asymstad@usgs.gov](mailto:asymstad@usgs.gov). I encourage you to contact her in regards to projects, technical assistance, etc..

**Forest Service Building:** Well the latest news from the Forest Service is not good. They've been told to significantly reduce the size of their proposed new building. The latest plan has us squeezed out of the picture. Of course nothing has passed Congress yet so things could change, but right now it does not look good. We should have a clearer picture by our February 12<sup>th</sup> meeting.

**Annual Work Plan:** The remainder of this newsletter consists of the annual report we need to submit to WASO, a.k.a., our *Annual Administrative Report (FY2002) and Work Plan (FY 2003) for Inventories and Vital Signs Monitoring* (starting on page 3). You all

saw a draft of it in our October newsletter, but I've been asked to run it by you again (the following is identical to that draft except for some small changes and the addition of new text describing the project changes I've listed above). Please contact me if you have questions or comments. I need to submit the document to Region by January 15.

**ANNUAL ADMINISTRATIVE REPORT  
(FY2002) AND  
WORK PLAN (FY 2003) FOR INVENTORIES  
AND VITAL SIGNS MONITORING**

**NORTHERN GREAT PLAINS NETWORK**

**Includes Agate Fossil Beds NM, Badlands NP, Devils Tower NM, Fort Laramie NHS, Fort Union Trading Post NHS, Jewel Cave NM, Knife River Indian Villages NHS, Missouri National Recreation River, Mount Rushmore NMEM, Niobrara Scenic River, Scotts Bluff NM, Theodore Roosevelt NP, and Wind Cave NP**

*Northern Great Plains Network Approval Signatures*

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Dan Licht, Northern Great Plains I&M Coordinator Northern Great Plains Network	Date
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Phyllis Adams, Midwest Region I&M Coordinator Midwest Region	Date
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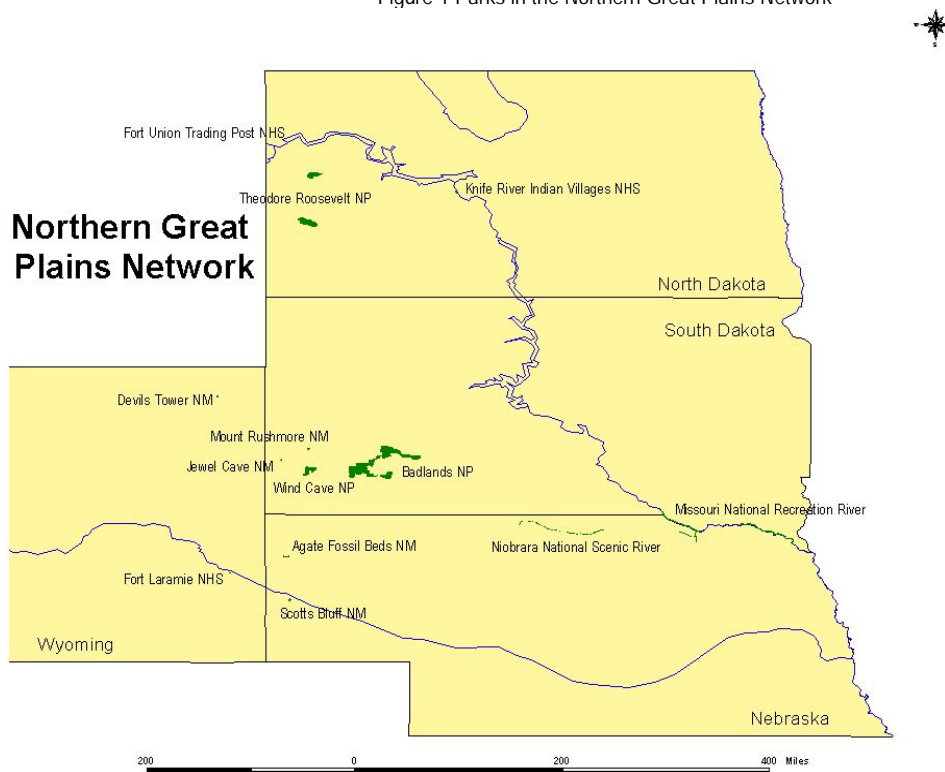
William Supernaugh, Superintendent, Badlands National Park For the Northern Great Plains Network Steering Committee	Date
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## I. Overview AND OBJECTIVES

The Northern Great Plains (NGP) Network includes thirteen national park units located in Nebraska, North and South Dakota, and eastern Wyoming (Figure 1). In FY02, the Network received \$197,100 for conducting the biological inventory phase of the National Park Service (NPS) Inventory & Monitoring (I&M) Program. The Network did not receive funding for Vital Signs monitoring.

The Network used the inventory funds to: conduct field inventories for mammals, birds, and herpetofauna; identify, evaluate, and document existing biological data; populate NPSpecies, NPBIB, and other I&M databases; coordinate with other agencies and subject-matter experts; conduct a museum search for voucher specimens; and develop and test tools for making I&M data more accessible to park staff. These activities and accomplishments were identified in the Network's four-year inventory study plan which was approved by the NPS Washington Office (WASO) in FY02.

Figure 1 Parks in the Northern Great Plains Network



In addition to the inventory work described above, the Network conducted activities in FY02 in preparation for receiving Vital Signs monitoring funding in the future. Specifically, the Network conducted preliminary park-specific Vital Signs monitoring discussions in conjunction with park-specific inventory meetings.

The following objectives provided guidance to the Northern Great Plains Network's I&M Program for FY02.

Program Objectives for Biological Inventory Phase

- 1) Hire necessary personnel and develop infrastructure to implement the inventory program.
- 2) Compile and evaluate existing data for vertebrates and vascular plants.
- 3) Complete the documentation of 90% of vertebrate and vascular plant species expected to occur in the parks.

Program Objectives for Vital Signs Monitoring Phase

- 4) As opportunities arise, prepare for the monitoring phase of the I&M Program.

The above objectives will also guide the program in FY03. In addition, a fourth objective will be considered for the Biological Inventory Phase. The objective is; conduct biological inventories on the distribution and abundance of species of management concern to the parks.

## **ii. ACCOMPLISHMENTS (FY2002) AND SCHEDULED ACTIVITIES (FY2003)**

### **A. Biological Inventories**

#### **Objective 1 – Hire necessary personnel and develop infrastructure to implement the inventory program.**

##### **FY02 Accomplishments:**

- The Network retained the same Inventory Coordinator for all of FY02. However, the Network biological technician resigned in May of FY02. A technician was hired for the summer months and did an exceptional job. In late summer the Network paid for 2 months of a Wind Cave NP computer assistant's time. The Network used these short-term hires in part because of the likely move to the Rapid City area at the end of FY02.
- Additional office (e.g., printers) and field (e.g., motion sensing wildlife cameras, GPS units) equipment was procured that is critical to a fully functioning inventory program. In addition, the program acquired three digital cameras, two scanners, and other photographic equipment through a Kodak grant valued at \$,4681.60.
- The Network developed an oral agreement with the U.S. Forest Service to co-locate with a district of the Black Hills National Forest and the U.S. Forest Service-Rocky Mountain Research Station once their proposed new building is constructed south of Rapid City, South Dakota (planned for 2004). It is anticipated that this building will be the permanent site of the Network I&M Program.

FY03 Activities and Products:

- The Network I&M Coordinator will relocate the Network office to Mount Rushmore NMEM in early FY03 as an interim site until the U.S. Forest Service building in Rapid City is completed.
- A computer assistant should be hired in early FY03. The term position is designed to last a minimum of 13 months. The position will be responsible for data management and for assisting parks with I&M databases. The decision to hire from the computer series versus the biological technician series was made in part from experiences to date working with inventory data.
- The Northern Prairie Science Center of USGS-BRD (headquartered in Jamestown, North Dakota) will co-locate a research-grade plant ecologist with the Network I&M Coordinator at Mount Rushmore NMEM, starting in January 2003. This decision was the result of discussions between the Network Coordinator and the USGS-BRD Northern Prairie Science Center Director. A primary duty of the ecologist will be to work with parks in the I&M Network. It is anticipated that some of the work will be in support of I&M activities.

**Objective 2 – Compile and evaluate existing data for vertebrates and vascular plants.**

FY02 Accomplishments:

- The compilation and documentation of existing data was limited by the high turnover in Network technical staff. However, park-specific meetings were held at Agate Fossil Beds NM, Fort Laramie NHS, Wind Cave NP, and Theodore Roosevelt NP for purposes of identifying existing data and entering such data into national databases. As a result of these meetings significant progress was made in collecting legacy data (e.g., observation cards, voucher specimens, reports) and entering the data into NPSpecies. In FY02, 1,907 records were entered into NPSpecies. The Network installed and tested the program Synthesis as a way to better organize and disseminate inventory and other biological data. However, results of the test were less than satisfactory. Although it was determined that Synthesis has lots of potential and may someday be of use, the program currently has too many bugs, especially on networks, to justify its use. The Network made significant progress on developing an MS Access photographic database and protocol for storing photographic vouchers and other digital images.

FY03 Activities and Products:

- In FY03 the Network will continue meeting with park staff and entering appropriate data into NPSpecies and other databases, and reviewing the quality of the data. The Network will locate additional inventory material including observations, vouchers, and literature. The Network will coordinate data entry with parks, contractors, and WASO. The Network will enter data from the field inventories as it is available. The Network is considering using FY03 funds available from the vacant data technician position to fund data entry by the Principle Investigators conducting the field studies. Specifically, the mammal project would be increased by \$4.6k, the bird project by \$8.125k, and the herp project by \$1.5k so the respective Principle Investigators can

populate the Species Information fields in NPSpecies. A final decision in regards to these changes is expected in February of 2003.

**Objective 3 – Complete the documentation of 90% of vertebrate and vascular plant species expected to occur in the parks.**

*Task 3.1 – Data mining*

FY02 Accomplishments:

- Some additional legacy data was found on presence of species in the parks. For example, several plant vouchers were found at the University of South Dakota herbarium that were collected from Badlands NP. In the summer of 2002, the museum search of vertebrate vouchers being conducted by the University of Nebraska-Lincoln was initiated.

FY03 Activities and Products:

- The Network will continue to mine for data and review existing data for quality.
- The museum search of vertebrate vouchers being conducted by the University of Nebraska-Lincoln will conclude in the summer of 2003 (although the final report is not due until FY04).
- The Network will spend approximately \$2,000 to fund a more thorough search of the University of South Dakota herbarium for plant vouchers from NPS units. The work will be conducted by a NPS employee attending graduate school at the university.

*Task 3.2 - Prepare and submit a multiyear inventory study plan for vertebrates and vascular plants.*

FY02 Accomplishments:

- The Northern Great Plains Inventory Study Plan was approved by the Washington Office in FY02.

FY03 Activities:

- No further tasks are planned in FY03 in regards to the Inventory Study Plan; however, if amendments to the plan are necessary, they will be submitted to WASO for review and approval.

*Task 3.3 – Fish inventories*

FY02 Accomplishments:

- The fish inventories have been completed and a final report received. Voucher specimens are temporarily stored at parks. Data from the inventories were entered into NPSpecies. Nine species of fish were documented at Devils Tower NM. The investigators expressed surprise that additional species were not detected in light of apparently suitable habitat. The failure to detect some of these species may be due to deeper habitats and inadequate sampling gear. At Mount Rushmore NMEM two species were collected, one of which was the non-native brook trout. At Fort Laramie NHS 21 species were identified and collected. At least three of the species are non-indigenous (brook and brown trout and common carp). The park contains both warm water and cold water species and, specifically in regards to the Laramie River, appears to be in a transition zone between the two habitat types. The investigators

speculated that additional species could have been detected in the North Platte River using electro-fishing from boats. At Scotts Bluff NM 21 fish species were collected. The investigators felt that additional species may be present in the North Platte River, but high flows limited their sampling of the deep water portions of the river. At Wind Cave NP 7 species were sampled, one of which was the non-native brook trout. The plains topminnow, a species of concern to park staff, was not found in the survey effort. The investigators concluded that the species was most likely not present at the park. In summary, the investigators noted in their report that 20% of the species they found and documented were not on the expected list for the park. Conversely, they did not sample 11 of the 39 species expected to be found at the parks, tenuously suggesting that these species may not be present (with the exception of Scotts Bluff and Devils Tower NM and Fort Laramie NHS where sampling was incomplete due to deep water habitat). The investigators concluded that this deviation from the expected species list for the parks was due in large part to a lack of prior knowledge and sampling effort.

FY03 Activities and Products:

- The Network will process the spatial, photographic, and other unprocessed data from the fish inventories and enter the data and metadata into appropriate databases.

*Task 3.4 – Mammal inventories*

FY02 Accomplishments:

- Mammal field inventories began in FY02. Small mammal trapping using live-traps and pitfall traps stratified by habitat was conducted at Devils Tower NM, Mount Rushmore NMEM, Fort Union Trading Post NHS, Knife River Indian Villages NHS, Agate Fossil Beds NM, and Scotts Bluff NM. A progress report was received just prior to completion of this annual report; the results of the progress report will be included in next year's Network annual report. Discussions with the investigator indicate that the mammal work was taking somewhat longer than anticipated, due in part to delays in procuring equipment, lack of accessibility, and difficulty in setting pitfall traps due to rocky substrate; however, no significant deviations to the scope of work or study design were necessary. Voucher collections were taken, however, the number and type varied from park to park depending on the park's needs and desires. At least one new county record appears to have been made as a result of the inventory (definitive species identification will require laboratory study). Documentation of mid-size mammals will be made in part using motion sensing cameras. Over 100 camera nights were sampled at Mount Rushmore NMEM in FY02.

FY03 Activities and Products:

- Field work will continue in FY03 at the parks visited in FY02. All parks that had small mammal inventories in FY02 will be revisited for bat inventories using mist nets and acoustic monitors. Those parks will also be inventoried for mid-size and large mammals by searching various habitats and recording all mammals observed (collecting photographic vouchers wherever possible). Complete mammal inventories will be initiated in FY03 at Jewel Cave NM



and the Missouri National Recreation River, with the exception that bat inventories are not needed at Jewel Cave NM. Motion sensing wildlife cameras will be placed in as many parks as possible in FY03.

### *Task 3.5 – Bird inventories*

#### FY02 Accomplishments:

- Bird inventories, comprised of both systematic point counts and targeted searches, were conducted at Mount Rushmore NMEM, Jewel Cave NM, Knife River Indian Villages NHS, Fort Union NHS, Devils Tower NM, and Wind Cave NP. Point count data from bird inventories in the Black Hills national park units will be pooled with data from a monitoring effort funded by the Black Hills National Forest to evaluate range-wide distribution and temporal trends. A progress report for the inventory effort is due by the end of the 2002 calendar year.

#### FY03 Activities and Products:

- Field inventories conducted in FY02 will be replicated at the same parks in FY03. Targeted inventories may differ slightly to account for species not documented in earlier efforts (e.g., more nighttime searches may be conducted if necessary to reach the 90% objective); however, the total search hours will remain the same as identified in the scope of work and Study Plan. Point count data from bird inventories in the park units in the Black Hills will be pooled with data from a monitoring effort funded by the Black Hills National Forest to evaluate range-wide distribution and temporal trends.

### *Task 3.6 – Herpetofauna inventories*

#### FY02 Accomplishments:

- Field inventories for amphibians and reptiles were conducted at Devils Tower NM, Jewel Cave NM, Scotts Bluff NM, Mount Rushmore NMEM, Fort Laramie NHS, Fort Union Trading Post NHS, and Knife River Indian Villages NHS. The investigator has stated that sampling success in FY02 was comparatively poor due to the dry conditions. He also stated that the nighttime searches were less productive than the daytime effort. A progress report is due late in the 2002 calendar year. Although not a direct result of the funded herpetofauna inventory, a plains leopard frog was identified and collected from Badlands NP. This observation significantly expands the known distribution of the species.

#### FY03 Activities and Products:

- Field inventories for amphibians and reptiles in FY02 will be replicated at the same parks in FY03; however, slight changes will be made in the methods used based on the experience in FY02. Specifically, most of the hours budgeted for nighttime searches will be shifted to additional daytime searches, and some of the hours budgeted for fall field work will be shifted to spring and summer field work. The investigator will work closely with the Network Coordinator to be more flexible and responsive to local weather conditions. If 2003 is another dry year some work may be postponed until 2004. In addition to the sites surveyed in 2002, the herpetofauna inventory will be initiated at the Missouri National Recreation River in FY03. Due to the size and complexity

of the park, and the fact that most is in private ownership, significant preparation will be required for the inventory. It is anticipated that the herpetofauna inventory at the park will be done in conjunction with the mammal inventory.

*Task 3.7 – Plant inventories*

FY02 Accomplishments:

- No field work for plants was scheduled for or conducted in FY02.

FY03 Activities and Products:

- Field inventories for plants are scheduled to begin in FY03. Inventories are needed at Jewel Cave NM, Mount Rushmore NMEM, Fort Laramie NHS, and Fort Union Trading Post NHS for purposes of meeting the 90% objective of the Inventory Phase; however, the Network was able to procure non-I&M funding for a plant study at Jewel Cave NM and hopes to receive outside funding for a plant study at Mt. Rushmore NMEM. Therefore, plant inventories in FY03 will be conducted only at Fort Laramie NHS and Fort Union Trading Post NHS. The objectives of the inventories are: 1) identify and record at least 90% of vascular plant species occurring at the parks, 2) within plots collect cover data by strata and accompanying habitat information in a manner compatible with the NBII plot data standards, 3) implement a random sampling method that allows for inference to non-sampled areas, 4) record GPS locations for plot locations and rare species, and, 5) collect voucher specimens for each species not currently in park collections. Data will be collected using a stratified random design with specialized searches conducted in plant communities not picked up by the randomly placed plots. A principle investigator has not yet been identified.

*Task 3.8 – Inventories of distribution and abundance of species of management concern*

FY02 Accomplishments:

- No field work was scheduled for or conducted in FY03 that specifically pertained to this task.

FY03 Activities and Products:

- Should funds be available the Network may consider and implement projects aimed primarily at this objective. This determination will be made at the Network's annual meeting scheduled for February of 2003. Any new projects initiated under this objective would be consistent with the objective and with the Network Inventory Study Plan. Any new projects initiated under this objective would be coordinated with the Regional and National Inventory Coordinators.

**B. Vital Signs Monitoring**

**Objective 4 – As opportunities arise, prepare for the I&M Program.**

FY02 Accomplishments:

- The Network conducted a preliminary Vital Signs scoping meeting at Agate Fossil Beds NM in conjunction with a biological inventory meeting. The meeting was viewed as successful in terms of bringing out issues and getting the park to think in terms of long-term monitoring needs.

#### FY03 Activities and Products:

- Based on information received that the national I&M meeting in Denver in the fall of 2002, the Network does not expect to receive monitoring funding in FY03. In light of the needs and demands of the inventory program, and the limited funding available, the Network does not anticipate working on Vital Signs monitoring in FY03; however, should conditions change, the Network may conduct some monitoring related activities such as establishing a Board of Directors, developing a Charter, and/or conducting more preliminary scoping meetings. In the event that the Network does receive Vital Signs funding in FY03 the Network would use the funds to hire a permanent Monitoring Coordinator and a Data Management Specialist, as well as establish a Board of Directors, develop a Charter, and conduct other monitoring related activities.

### **III. Staffing**

#### FY02

Dan Licht, Northern Great Plains I&M Coordinator (All Year. 0.7 FTE)

Dawn Holguin, Biological Data Technician (January to May)

Jon Dalglish, Biological Data Technician (June to August)

Will Powers, Computer Assistant (August to September)

#### FY03

Dan Licht, Northern Great Plains I&M Coordinator (0.7 FTE)

Computer Assistant (starting around January 2002)

### **IV. Public Interest Highlights**

A significant range expansion for the Plains leopard frog was made with documentation of the species at Badlands NP. A new country record for a shrew may have been made (pending laboratory identification).

### **v. Reports, Publications and Presentations**

No reports, publications, or formal presentations were given by the Network in FY02. It is anticipated that several presentations will be given in FY03 as the Network develops partnerships with other agencies and organizations, and as the inventory investigators collect more data of interest to the public, other agencies, and the scientific community.

### **VI. Status of Park Vital Signs Monitoring**

The Northern Great Plains Network does not expect to receive Vital Signs monitoring in FY03. The Network will continue park-initiated and/or park funded monitoring projects currently being conducted. A tally of parks conducting monitoring projects is reported in Table 1.

Table 1. Tally of ongoing monitoring projects.

	Air Quality	Water Quality	Water Quantity	Geologic Resources	Plants	Animals	Landscape Characteristics
<b>Planning and Design</b>							
# parks monitoring w/ NRC funding	3	0	0	0	0	0	0
# parks monitoring w/ other funding	0	1	1	0	5	6	0
<b>Protocols Implemented</b>							
# parks monitoring w/ NRC funding	3	0	0	0	0	0	0
# parks monitoring w/ other funding	0	1	1	0	5	6	0
<b>Analysis/Synthesis Available</b>							
# parks monitoring w/ NRC funding	0	0	0	0	0	0	0
# parks monitoring w/ other funding	0	0	0	0	5	6	0

Examples of ongoing monitoring projects that are not supported by Natural Resource Challenge funds include a black-footed ferret monitoring program at Badlands National Park, tiger salamander monitoring at Wind Cave National Park, bat monitoring at Jewel Cave National Monument, and exotic plant monitoring at Theodore Roosevelt National Park. Some of these monitoring projects are conducted solely with park base funds, others are leveraged with other funding sources from within and outside the National Park Service.

## VII. Budget

The Northern Great Plains Network received \$197,100 in funding in FY02 and should receive a similar amount in FY03.

A detailed budget for FY03 is described in the Network Inventory Study Plan. The budget is also documented in an MS Access file being submitted to WASO along with this annual report.